



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/047,521	11/13/2001	Anthony William Worsdell	DAVIDK 3.9-002 CONT	5149
530	7590	02/23/2005	EXAMINER	
LERNER, DAVID, LITTENBERG, KRUMHOLZ & MENTLIK 600 SOUTH AVENUE WEST WESTFIELD, NJ 07090			PAYNE, SHARON E	
			ART UNIT	PAPER NUMBER
				2875

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/047,521	WORSDELL ET AL.	
	Examiner	Art Unit	
	Sharon E. Payne	2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 30 November 2004.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-5, 7-22 and 24-63 is/are pending in the application.
- 4a) Of the above claim(s) 32-46 and 48-62 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-5, 7-18, 21, 24-31, 47 and 63 is/are rejected.
- 7) Claim(s) 19 and 20 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4, 7, 9, 10, 12, 16-18, 25, 26, 28-30, 31, 47 and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman et al. (U.S. Patent 5,984,494) in view of Old (U.S. Patent 1,430,580).

Regarding claim 1, Chapman et al. discloses a housing (Fig. 1) adapted to be mounted on the exterior of the aircraft (abstract), a transparent window (reference number 10) protecting an opening in the housing (Fig. 1), a light source comprising an array of LEDs (column 3, lines 60-62) disposed in the housing (Figs. 1 and 8) and an optical unit (reference number 34) also disposed in the housing behind the window and fixed in front of the LEDs (Figs. 1 and 8), the optical unit being adapted to collect the light emitted from the LEDs and propagate fractions of the collected light Chapman et al. does not specifically disclose the optical unit comprising a transparent, molded body.

Old discloses the optical unit comprising a transparent, molded body (column 1 ,lines 10-15) having first and second opposing faces (Fig. 1, both sides of the portion labeled reference character E), the first and second opposing faces each including refractive optics (Fig. 1) to provide a warning signal in accordance with a predetermined non-uniform angular distribution that varies in intensity over a range of angles based on the refractive optics (Fig. 1, column 1 in lines 15-30). (Each step in the molded body is considered to be a lens.)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the lens of Old in the apparatus of Chapman et al. in order to avoid producing glare (column 1, lines 15-30, of Old).

Concerning claim 4, Chapman et al. discloses the optical unit (reference number 34) being positioned with respect to the LED array such that substantially all of the light emitted from the LEDs is incident upon the optical unit (Fig. 8). (The group of lenses, reference number 34, is considered to be the optical unit.)

Concerning claim 7, Chapman et al. does not specifically disclose a transparent, molded body. Old discloses the first opposing face of the transparent molded body including a plurality of lenses adapted to collect light from the LEDs incident upon the optical unit (Fig. 1, portions by reference character E).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the transparent, molded body of Old in the apparatus of Chapman et al. to avoid producing glare (column 1, lines 15-30, of Old).

Regarding claim 8, Chapman et al. discloses each one of the LEDs being associated with a respective one of the plurality of lenses (reference number 34, Fig. 8).

Concerning claim 10, Chapman et al. discloses each lens of the plurality of lenses is positioned immediately in front of the LED with which the lens is associated (Fig. 8).

Regarding claim 12, Chapman et al. discloses each lens of the plurality of lenses being spherical (Fig. 9).

Concerning claim 16, Chapman et al. does not disclose a second opposing face adapted to transmit the collected light from the optical unit. Old discloses a second opposing face (portion on opposite side of character E, Fig. 1) adapted to avoid producing glare (column 1, lines 23-30, of Old).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the second opposing face of Old in the apparatus of Chapman et al. to avoid producing glare (column 1, lines 23-30, of Old).

Regarding claim 17, Chapman et al. does not disclose any prisms. Old discloses the second opposing face comprising one or more prisms (Fig. 1) adapted to propagate the collected light in accordance with the predetermined angular distribution (column 1, lines 20-22).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the prisms of Old in the apparatus of Chapman et al. to avoid producing glare (column 1, lines 23-30, of Old).

Concerning claim 18, Chapman et al. does not disclose prisms. Old discloses the second opposing face comprising a plurality of prisms extending along the length of the light source to form a series of ridges on an outer surface of the optical unit (Fig. 1). (Chapman et al. discloses LEDs for the reasons set forth in the rejection of claim 1.)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the prisms of Old in the apparatus of Chapman et al. to avoid producing glare (column 1, lines 23-30, of Old).

Concerning claim 25, Chapman et al. discloses a spacer adapted to position the optical unit at a selected distance from the LEDs (Fig. 8). (The bottom portion of the lenses acts as a spacer.)

Regarding claim 26, Chapman et al. discloses the spacer being formed integrally with the optical unit (Fig. 9).

Regarding claim 28, Chapman et al. does not specifically disclose providing a gap between the LEDs and the optical unit of up to 5 mm.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to determine the spacing between the optical unit and the LEDs in the Chapman et al. reference to use the light from the light source effectively.

Regarding claim 29, Chapman et al. does not specifically disclose providing a gap between the LEDs and the optical unit that is between 0.3 mm and 2mm.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to determine the spacing between the optical unit and the LEDs in the Chapman et al. reference to use light from the light source effectively.

Concerning claim 30, Chapman et al. discloses one or more IR LEDs (abstract).

Regarding claim 31, Chapman et al. discloses an optical structure adapted to collect the light emitted from the LEDs (column 5, lines 60-62) and propagate fractions of the collected light in accordance with a predetermined non-uniform angular distribution that varies in intensity over a range of angles (column 5, lines 60-62). Chapman et al. does not specifically disclose a transparent, molded body.

Old discloses the optical unit comprising a transparent, molded body (column 1, lines 10-15) having first and second opposing faces (Fig. 1, both sides of the portion labeled reference character E), the first and second opposing faces each including refractive optics (Fig. 1) to provide a warning signal in accordance with a predetermined non-uniform angular distribution that varies in intensity over a range of angles based on the refractive optics (Fig. 1, column 1 in lines 15-30). (Each step in the molded body is considered to be a lens.)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the lens of Old in the apparatus of Chapman et al. to direct the to avoid producing glare (column 1, lines 23-30, of Old).

Concerning claim 47 Chapman et al. discloses an array of LEDs (abstract), an optical unit (lenses, reference number 34) having an optical structure adapted to collect light emitted from the LEDs and propagate fractions of the collected light in accordance with a predetermined non-uniform angular distribution that varies in intensity over a range of angles (column 5, lines 60-62), and spacing means for holding the optical unit at a fixed distance from the LEDs (Fig. 9). The sides of the smaller lenses (the smaller domes in Fig. 9) constitute spacing means to keep the top of the lens, part of the optical unit, at a fixed distance from the LED. Chapman et al. does not specifically disclose a transparent, molded body.

Old discloses the optical unit comprising a transparent, molded body (column 1, lines 10-15) having first and second opposing faces (Fig. 1, both sides of the portion labeled reference character E), the first and second opposing faces each including refractive optics (Fig. 1) to provide a warning signal in accordance with a predetermined non-uniform angular distribution that varies in intensity over a range of angles based on the refractive optics (Fig. 1, column 1 in lines 15-30). (Each step in the molded body is considered to be a lens.)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the lens of Old in the apparatus of Chapman et al. to avoid producing glare (column 1, lines 23-30, of Old).

Regarding claim 63, Chapman et al. discloses one or more IR LEDs (abstract).

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman et al in view of Old as applied to claim 1, and further in view of Meggs (U.S. Patent 4,521,835).

Concerning claim 2, Chapman et al. does not disclose the type of optical unit disclosed in the claim. Meggs et al. discloses an optical unit adapted to redirect, in a substantially forward direction relative to the orientation of an aircraft to which the warning light is affixed (column 4,

lines 1-10), at least some of the light which otherwise would be emitted from the LEDs in a substantially lateral direction relative to the orientation of the aircraft (column 4, lines 10-20). The portion of the claim starting with "wherein" in line 2 and ending with "navigation warning light" in line 3 constitutes use language, which is not given patentable weight. See M.P.E.P. 2112. (A navigation warning light is merely another use for a light; the structure is still that of a light.)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the optical unit of Chapman et al. with the optical unit of Meggs et al. to redirect the light toward the front of the aircraft so that a pilot can see.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman et al. in view Old as applied to claim 1, and further in view of Bodem (U.S. Patent 5,388,035).

Regarding claim 3, Chapman et al. does not disclose an optical unit that is adapted to redirect light in a substantially horizontal direction from a vertical direction. Bodem discloses an optical unit that is adapted to redirect, in a substantially horizontal direction relative to the orientation of an aircraft to which the warning light is affixed, at least some of the light which otherwise would be emitted from the LEDs in a substantially vertical direction relative to the orientation of the aircraft (abstract).

The portion of the claim starting with "wherein" in line 1 and ending with "anti-collision light" in line 2 constitutes use language, which is not given patentable weight. See M.P.E.P. 2112. (An anti-collision light is merely another use for a light; the structure is still that of a light.)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the optical unit of Bodem in the apparatus of Chapman et al. for spreading the light horizontally so that one can see to the side of the aircraft.

5. Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman et al. in view Old as applied to claim 7 and further in view of Roney (U.S. Patent 5,528,474).

Concerning claim 9, Chapman et al. does not disclose the LED and lens arrangement as described in the claim.

Roney et al. discloses the array of LEDs comprising a plurality of rows of LEDs (Fig. 1) and each of the rows is associated with a respective one of the plurality of lenses (abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the lens arrangement of Roney et al. in the apparatus of Chapman et al. to use the light from the LEDs effectively and direct it where desired.

Regarding claim 11, Chapman et al. does not disclose the lens arrangement described in the claim.

Roney et al. discloses each lens of the plurality of lenses being positioned immediately in front of the row of LEDs with which the lens is associated (Fig. 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the lens arrangement of Roney et al. in the apparatus of Chapman et al. to use the light from the LEDs effectively and direct it where desired.

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman et al. in view of Old and Roney et al. as applied to claim 9 above, and further in view of DE 4128995 A1 (hereinafter "Decker").

Regarding claim 13, Chapman et al. does not disclose aspherical lenses. Decker discloses the plurality of lenses being aspherical (reference character P).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the aspherical lenses of Decker in the apparatus of Chapman et al. to illuminate the portion to the front of the lighting fixture as desired.

7. Claims 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable Chapman et al. in view of Old as applied to claims 1 and 12 above and further in view of GB 2,295,274 A (hereinafter "Bernard").

Regarding claim 5, Chapman et al. does not disclose total internal reflection-based optics. Bernard discloses the reflective optics comprising total internal reflection-based optics (abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the total internal reflection structures of Bernard in the apparatus of Chapman et al. to illuminate the portion in front of the lighting fixture as desired.

Regarding claim 14, Chapman et al. does not disclose total internal reflection structures. Bernard discloses an optical unit comprising total internal reflection structures (abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the total internal reflection structures of Bernard in the apparatus of Chapman et al. for distributing light throughout the structure to illuminate the portion in front of the lighting fixture as desired.

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman et al in view of Old, Roney and Decker as applied to claim 13 above, and further in view of Bernard.

Regarding claim 15, Chapman et al. does not disclose total internal reflection structures.

Bernard discloses an optical unit comprising total internal reflection structures (abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the total internal reflection structures of Bernard in the apparatus of Chapman et al. to illuminate the portion in front of the lighting fixture as desired.

9. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman et al. in view Old and Meggs as applied to claim 2 above, and further in view of Albou (U.S. Patent 6,273,591).

Regarding claim 21, Chapman et al. does not disclose an optical unit with convex lenses on one face and prisms on another. Albou discloses the first opposing face being in the form of a plurality of convex lenses (Fig. 1) and the second opposing face being in the form of one or more prisms (Fig. 1), and the convex lenses being positioned with respect to the one or more prisms such that light from the optical unit is propagated in accordance with the predetermined angular distribution (Fig. 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the optical unit in Chapman et al. with the optical unit in Albou to illuminate the front of the lighting fixture as desired.

10. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman et al. in view Old and Bodem as applied to claim 3 above, and further in view of Futami et al. (U.S. Patent 6,386,743).

Regarding claim 22, Chapman et al. discloses an optical unit comprising a transparent body having first and second opposed faces (Fig. 8). Chapman et al. does not disclose

aspherical cylindrical lenses. Futami et al. discloses an optical unit comprising a transparent body having first and second opposed faces (Fig. 13), the first face being provided with a plurality of aspherical cylindrical lenses (Fig. 1, column 9 in line 63 to column 10 in line 10).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the optical unit of Chapman et al. with the optical unit of Futami et al. to illuminate the front of the lighting fixture as desired.

11. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman et al. in view of Serizawa et al (U.S. Patent 4,733,335)

Regarding claim 24, Chapman et al. does not specifically disclose an integrally molded, plastic element. Serizawa et al. discloses the optical unit as an integrally molded, plastic element (column 4, lines 44-45, reference number 125, Fig. 8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the plastic optical element of Serizawa et al. in the apparatus of Chapman et al. to protect the LED.

12. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman et al. in view Old as applied to claim 25, and further in view of Roney et al.

Concerning claim 27, Chapman et al. does not disclose a potting compound. Roney et al. discloses the LEDs being encapsulated in a potting compound (reference number 14) and the potting compound is formed at a predetermined depth to provide the spacer (Fig. 2). The potting compound and the ends of the lenses both function as spacers.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the potting compound of Roney et al. in the apparatus of Chapman et al. to further support the LEDs.

Allowable Subject Matter

13. Claims 19 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. The following is a statement of reasons for the indication of allowable subject matter. The prior art fails to disclose each string of LEDs being connected in parallel with the other strings of the plurality of strings and comprising a plurality of LEDs connected in series, and the prisms are positioned to extend across the LEDs of the plurality of the strings as recited in claim 19.

Response to Arguments

15. Applicant's arguments with respect to claims 1-5, 7-18, 21-22, 24-31 and 47 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharon E. Payne whose telephone number is (571) 272-2379. The examiner can normally be reached on regular business hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

18. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

sep



Sandra O'Shea
Supervisory Patent Examiner
Technology Center 2800